



Benefits of Using a Digital X-ray Imaging System

Why X-Caliber?

X-Caliber vs CR

X-Caliber vs Flat Panel

Cost of Film

Benefits with digital radiography

Switching from film to digital radiography is an expensive decision. So why should you do it?

Examinations will go faster and easier than ever before

Your X-ray images will be displayed in seconds for you and your patient to see. Let your patient get a look and know immediately if you will need retakes or additional views to make your diagnosis.

Eliminate film developing

Get rid of your darkroom and the task of film development for your staff. Toxic chemicals, lost darkroom space and workflow interruptions to develop films will be a thing of the past.

Improve your diagnosis

Take advantage of the many tools available in X-ray viewing and annotation software. Pull up patient images and notes instantly and perform measurements in seconds that would have required a ruler and protractor on film. Use image processing techniques that are impossible with film to clarify your image, such as changing contrast, sharpness and brightness of your image, to improve diagnosis or to show your patients.

Share across the World

Send and receive images with doctors and hospitals as easily as you send emails. Exams can be burned to CD for display on any computer or shared directly over the internet as if you were in one office. Automatic backup can be done on-site, or with an off-site service to fulfill HIPAA requirements. All of this without the need to keep a single file cabinet of films in your valuable office space.

No film, no cassette, no chemicals

Images in seconds, no hassle

Enhance the image of your practice

- Display your X-rays within seconds
- Improve your workflow
- Avoid lengthy patient waits or return visits due to poor X-ray technique
- Eliminate darkrooms and film storage from your practice
- Eliminate toxic chemical handling and waste
- Send exam across the country for radiologist reads by internet or CD/DVD
- Impress your patients with a high-tech facility



System Images





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Choosing Between CCD and CR Systems

For most small clinics, the only price-practical choices for digital imaging are CCD detectors or CR plates.

CR is somewhat in between fully digital systems that use only electronics to capture the x-ray image, and conventional film. Because it uses phosphor plates and a scanner, working with CR still has several of the problems of conventional film.

CR uses cassettes

CR systems work with cassettes that can cost well over a thousand dollars each. Like conventional film, each cassette must be "processed" by a CR scanner before the image can be viewed or the cassette can be used for a second shot. Purchasing extra cassettes to use on multi-shot exams, a relatively cheap choice with conventional film, is a large investment for a clinic using CR.

CR uses scanners

A CR image is not acquired when the x-ray is shot. The CR cassette must be placed into the CR scanner by a technician, where the phosphor plate will be removed from the cassette, scanned, and erased. Only at the end of the scanning can the image be seen and the cassette used for another shot. Some cheaper CR scanners require the technologist to remove the phosphor screen themselves, greatly increasing both the work for the technician and the damage done to the screen with each scan.

CR is slower than CCD

Faster acquisition results in shorter patient visits and therefore greater patient satisfaction. A radiology exam that takes 25 to 30 minutes using CR can easily take only 10 to 12 minutes using CCD, as images are immediately available and the doctor and patient do not have to wait for cassettes to be scanned and recycled.

Quality CR costs the same as Quality CCD

While both technologies have extremely cheap examples in the market, the best CCD cameras are now competitive in price with the high quality brands of CR.

CR is more expensive to maintain

While more efficient in consumables than film, CR cassettes must still be replaced regularly at high cost as they wear out, and CR scanners still require maintenance and repair. CCD cameras have no consumables and no moving parts.



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CCD DR vs Flat Panel

Besides CCD (charge coupling device) cameras, there is another option for fully digital X-ray. Flat panel detectors are thin and easier to retrofit into existing equipment than a CCD camera. So why go with the X-Caliber CCD?

Flat Panel DR is expensive

Flat panel DR systems can cost several times the price of an X-Caliber CCD. Even the cheapest are tens of thousands of dollars more than a complete X-Caliber retrofit.

Flat Panels are exposed to radiation

The electronics of flat panel detectors are placed directly in the X-ray beam. All electronics in the X-Caliber are shielded behind lead and placed several feet outside the exposed area, greatly increasing the life span of the electronics.

Flat Panels are not repairable

The active area (the main body of the detector that actually detects the X-rays) of flat panel detectors are produced as a single piece and can not be repaired or replaced. It is not yet known what the average lifespan of a flat panel detector will be. The X-Caliber CCD is assembled so that individual parts, from the camera to the control buttons, can be replaced or repaired at a tiny fraction of the cost of replacing an entire detector.



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Film or digital x-ray decision

The costs of film in a mid - high volume clinic can be substantial and should be taken into account when analyzing whether or not to transition to a digital technology. There are both direct as well as indirect costs associated with the use of film in processing x-rays. Both of these should be considered when deciding whether or not to use a digitally processed x-ray or an x-ray processed using film.

Direct film costs + indirect film costs = true film costs

Direct costs include

- Film
- Chemistry
- Darkroom
- Processor maintenance
- Processor repair
- Film jackets & supplies
- ID printer & paper

Indirect costs include

- Time spent loading cassettes
- Time spent processing film
- Other handling costs associated with film
- Retakes, Retakes, Retakes
- Physical storage space
- Safety liability issues

Monthly Costs Incurred by Film Users			
	Low Volume	Mid Volume	High Volume
Direct Cost	\$242.00	\$416.00	\$650.00
Indirect Cost	\$200.00	\$200.00	\$200.00
Total	\$442.00	\$616.00	\$850.00

When compared to the return on investment received by transitioning to a digital system, the initial cost of going digital is far out-weighted by the on-going residual costs of film. Over time it actually costs more to stay with film than to convert to a digital system.

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